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THREE NEW SPECIES OF *MICRONECTA* FROM THAILAND WITH A KEY TO SE ASIAN SPECIES. (HETEROPTERA: CORIXIDAE)

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Abstract.—Three new species of *Micronecta* are described: *M. drepani* n. sp. and *M. lemnae* n. sp. from Thailand and *M. polhemusi* n. sp. from Thailand and Viêt Nam. A key for identification of Micronectinae of Thailand and adjacent areas is presented.

Key words: *Micronecta,* new species, key, SE Asia.

This paper is a preliminary study for a handbook of the Heteroptera of Thailand (Ed. P. P. Chen) of which the first part will deal with aquatic and semiaquatic Heteroptera. The material studied was collected in Thailand for this project by P. Chen, N. Nieser (NCTN) and H. Zettel (NHMW). Additional material from adjacent areas in NHMW has also been studied. New records are based on specimens in these two collections.

Measurements are given in mm and are based on 5♂ and 5♀ from the series containing the holotype, if available. They are presented as the mean followed by the sample standard deviation (square root of sum of quadrates divided by N−1), if N is different from 5 this is mentioned. For some measurements the value of the holotype is given in *italics* between brackets behind the standard deviation.

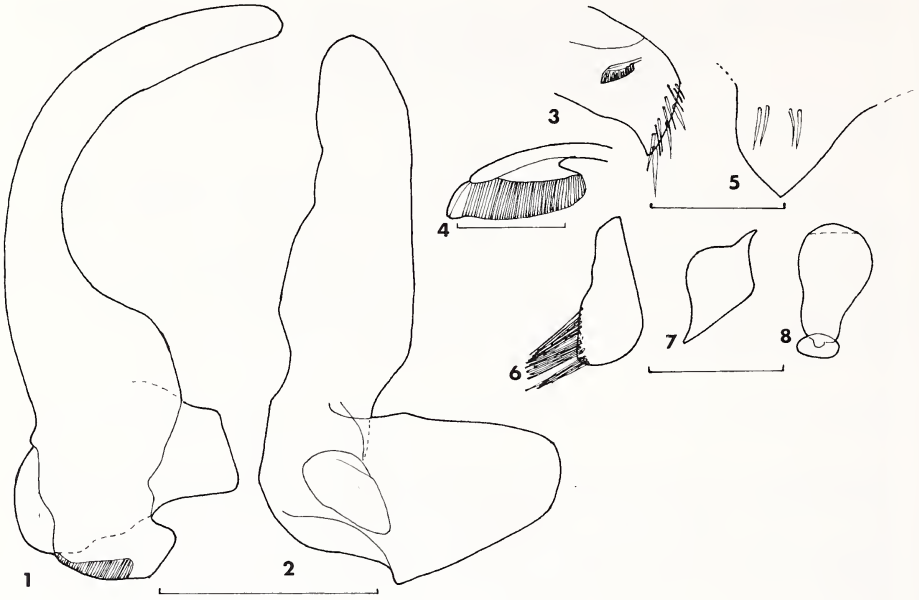
Length without specification is the body length measured from apex of head to apex of hemelytra in dorsal view.

A special ratio is the ocular index, which is calculated as two times the synthlipsis divided by the width of the head across the eyes minus the synthlipsis.

Micronecta is the type genus of the subfamily Micronectinae of the family Corixidae. The subfamily consists of small to very small (body length 0.8–6 mm) Nepomorpha with greatest species diversity in tropical areas (Hungerford, 1958; Wróblewski, 1968; Nieser, 1977). Especially in *Micronecta,* species from warmer areas tend to be predominantly macropterous whereas in temperate regions the brachypterous form is usually more common (Wróblewski, 1958). Micronectinae can be very numerous in suitable habitats thus forming in several instances an important element in the food chain.

SYSTEMATICS

The subfamily Micronectinae contains three genera: *Micronecta* Kirkaldy, 1897; *Synaptonecta* Lundblad, 1933; *Tenagobia* Bergroth, 1899. The latter is restricted to the Americas and was until recently the only genus represented there (Nieser, 1977). *Micronecta* is widespread in all major regions of the Old World. *Synaptonecta* with only two species (Wróblewski, 1972) has its original distribution from India and Sri Lanka through SE Asia to Java. However, in the meantime *Synaptonecta issa* Distant



Figs. 1–8. *Micronecta drepani* sp. n. paratypes, 1–7 ♂; 8 ♀: 1. Right paramere, 2. Left paramere, 3. Right part of tergite 6, 4. Strigil, 5. Median lobe of sternite 7, 6. Free lobe of left part of tergite 8, 7. Prestrigilar lobe, 8. Receptaculum seminis. Scales: 4 0.05 mm; 1, 2 0.1 mm; 3, 5–8 0.25 mm.

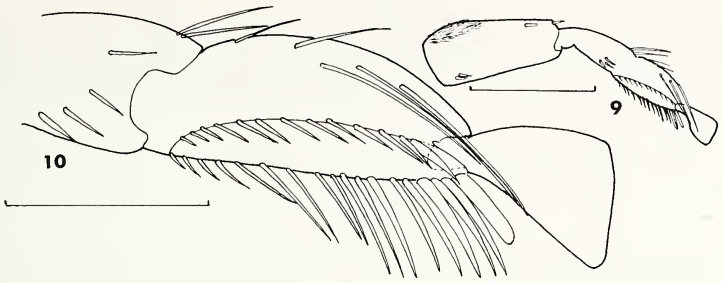
has established itself in Florida (Polhemus and Rutter, 1997) and has turned up in an aquarium in New Zealand (Jansson and Meyer-Rochow, 1990). *Micronectella* Lundblad (1933) and *Mesonecta* Poisson (1938) are currently considered subgenera of *Micronecta*. As the assignment of some species to subgenera is uncertain and a thorough analysis of the entire genus to establish subgeneric species groups is needed, subgenera are not used in this paper.

The Micronectine fauna of continental SE Asia has so far been little studied. Wróblewski (1968) gives a checklist of Oriental species. The fauna of India and Sri Lanka, containing a considerable number of species occurring also in SE Asia, has been treated by Hutchinson (1940) and Wróblewski (1972); the fauna of Viêt Nam has been treated by Wróblewski (1962, 1967); Nieser & Chen (1999) provide a key to the fauna of the western part of Indonesia complementing the classical work by Lundblad (1933) for this area.

Micronecta drepani, new species

Figs. 1–10

Description. Macropterous form (based on specimens glued on carton). *Dimensions.* Length ♂ 1.98, s 0.053 (*2.10*), ♀ 2.08, 0.088; width ♂ 1.01, 0.042 (*1.05*), ♀ 1.06, 0.046; width of head ♂ 0.76, 0.026 (*0.78*), ♀ 0.80, 0.021; synthlipsis ♂ 0.38, 0.007 (*0.40*), ♀ 0.39, 0.012; width of an eye ♂ 0.21, 0.008 (*0.21*), ♀ 0.23, 0.011; width of pronotum ♂ 0.82, 0.023 (*0.83*), ♀ 0.85, 0.038.



Figs. 9–10. *Micronecta drepani* n. sp. paratype, 9. Fore leg, 10. Pala. Scales: 9, 0.25 mm; 10, 0.1 mm.

Color. Dorsally generally medium brown, head yellowish except for the grey eyes. Hemelytra with ill defined lighter and darker patches, basally (in the area where most species have a V-shaped hyaline stripe) and along costal margin red; surface of hemelytra with rather evenly scattered distinct pale spine-like bristles, hyaline stripes at base of clavus and inner side of right membrane absent; embolium basally with a dull black spot. Hind wings hyaline with a light smoky brown tinge. Venter dark, legs yellowish with apex of middle tarsus and posterior claw dark.

Ratio length/width of body, ♂ 1.96, 0.071, ♀ 1.96, 0.110. Head slightly narrower than pronotum, synthlipsis over 1.5 times wider than posterior width of an eye, ocular index ♂ 2.00, 0.073, ♀ 1.92, 0.091. Pronotum dorsally distinctly convex, about two and a half times as wide as long (W/L ♂,♀ 2.4). Spines laterally on abdominal segments: IV and V one short, one long; VI two short, two long, VII four short, three longer; VIII five short, two apically very long, hair-like. Submarginal row of bristles on right side of tergite 5 absent, only some small bristles of the same size as those covering the rest of the surface of the tergite present. Leg measurements summarized in Table 1.

Male, fore leg (Fig. 9); femur with a pair of spine-like bristles in basal third, an apical pair and a single slightly larger one subapically. Tibia with three subapical spine-like bristles ventrally, dorsally of these a thinner, hair-like, bristle and on dorsal margin a pair of longer hair-like bristles (Fig. 10). Pala (Fig. 10) with two shorter proximal and three long distal dorsal hairs, palm with 13–17 bristles in dorsal and 16–20 in ventral row, the ventral palmar bristles much more strongly developed than the dorsal ones, apically a thick bristle suggesting a secondary claw; claw large, very broadly truncate apically, without ventral notch, resembling a trowel. Abdomen, lobes of abdominal tergite 4 with nine to twelve bristles each. Prestrigilar flap distinct (Fig. 7), strigil small, oval, 1 comb with about 50 elongate teeth which are so tightly packed that they are difficult to count (Figs. 3, 4). Median lobe of seventh abdominal sternite with a relatively short and broad, pointed caudal part and four larger bristles at base (Fig. 5). Free lobe of left part of segment 8 nearly rectangular, lateral point ill defined, with a row of 18–22 bristles along lateral margin (Fig. 6). Plectrum on right part of segment 8 with very shallow indistinct ribs somewhat like a fingerprint, about 15 submarginal hairs in one row along inner margin between plectrum and

Table 1. Mean value of leg measurements* of *Micronecta* in mm.

	Femur	Tibia	Tars1	Tars2	Claw
M. drepani					
fore leg ♂	0.26	0.14	0.15		
fore leg ♀	0.26	0.25			
middle leg	0.63	0.22	0.33	—	0.19
hind leg	0.45	0.37	0.39	0.17	0.13
M. lemnae					
fore leg ♂	0.194	0.075	0.100		
fore leg ♀	0.185	0.178			
middle leg	0.47	0.173	0.202	—	0.131
hind leg	0.27	0.21	0.196	0.123	0.088
M. polhemusi					
fore leg ♂	0.33	0.19	0.16	—	—
fore leg ♀	0.37	0.36	—	—	—
middle leg	0.78	0.27	0.36	—	0.17
hind leg	0.51	0.46	0.49	0.20	0.12

* The measurement of the fore tibia in the ♀ refers to the joint tibia and tarsus.

apex of right part of segment 8. Right paramere (Fig. 1) with a distinct bulge at base of shaft, shaft evenly and strongly curved, about 35 ribs on pars stridens process. Left paramere comparatively large with a broad and flat apical part (Fig. 2). Aedeagus without special features.

Female fore leg, with essentially the same pattern of spines as in male. The three apical tibial spines indicate the border between tibia and pala on the tibiopala, claw narrow, sharply pointed, secondary claw present. Receptaculum seminis (fig. 8) quite small, simple, urn-shaped.

Types. Holotype, macropterous ♂, THAILAND, **Mae Hong Song Prov.,** Phaa Bong (about 20 km S of Mae Hong Song, along the road), small pond at base of water fall, most *Micronecta* collected between gravel and pebbles at outlet of pond and beginning of continuation of streamlet, N9511, 12.xi.1995, leg. N. Nieser (NCTN). Paratypes, THAILAND, **Mae Hong Song Prov.,** same data as holotype: 1♂, 3♀ (including allotype); same locality and date as holotype, leg. H. Zettel (13e), 12♂, 16♀ (NHMW). Phaa Bong, further down the stream at first crossing with path, N9512, 12.xi.1995, leg. N. Nieser 1♂, 1♀ (NCTN). **Phetchabun Prov.,** Nam Nao N.P., Huai Phrom Laeng, 24.xi.1995, leg. H. Zettel, 4♂, 20♀; Nam Nao N.P., Phrom Laeng, 22.iii.1994, leg. W. D. Shepard, 1♂, 3♀ (NHMW). All macropterous.

Etymology. Drepani (Greek: sickle), noun in apposition referring to the shape of the right paramere.

Discussion. In view of the shape of the left paramere, the large apically widened palar claw in the male, and the reduction of the submarginal row of bristles on the right side of tergite 5 of the male this species belongs to subgenus *Micronecta* s. str. (Hutchinson, 1940). The strongly and evenly curved right paramere is diagnostic; other species with a similar left paramere have the right paramere nearly straight or

hooked apically. The palar claw of the male is larger than in most species; its trowel-like shape and the reddish colour at the base and costal margin of the hemelytra is diagnostic compared to other *Micronecta.*

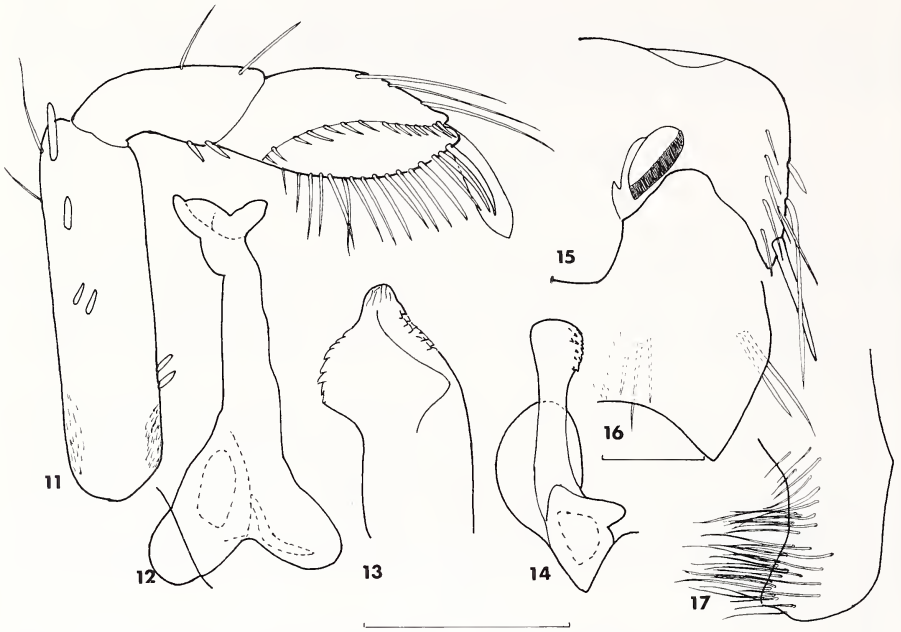
Micronecta lemnae, new species
Figs. 18–27

Description. Brachypterous form (based on alcohol specimens and the ♀ from NHMW glued to a carton). *Dimensions.* Length ♂ 1.26, ♀ 1.29, s 0.043; width ♂ 0.71, ♀ 0.77, 0.026; width of head ♂ 0.52, ♀ 0.55, 0.017; synthlipsis ♂ 0.24, ♀ 0.25, 0.015; width of an eye ♂ 0.15, ♀ 0.16, 0.006; width of pronotum ♂ 0.44, ♀ 0.45, 0.025.

Color. Dorsally sordid pale yellow, eyes castaneous, frons pale yellow, rostrum brown. Hemelytra smooth, with relatively large, usually poorly contrasting (most distinctly in the NHMW specimen), brown patches, a pair along each costal margin most distinct; hyaline mark at base of clavus very broad, not V-shaped. Venter, legs and dorsum of abdomen sordid yellow, some small crimson dots around the openings of the dorsal glands of the allotype which have developed into brown patches in the other specimens.

Ratio length/width of body ♂ 1.77, ♀ 1.67, 0.036. Head distinctly wider than pronotum, caudolateral angles of eyes covering the sides of pronotum and reaching the anterolateral angles of the hemelytra, synthlipsis slightly over 1.5 as wide as posterior width of an eye (0.24/0.16), ocular index ♂ 1.72, ♀ 1.71, 0.129. Pronotum distinctly reduced, flat, four and a half times as wide as long (W/L ♂♀ 0.45/0.10). Spines laterally on abdominal segments: VI two short, two long; VII two to three short, two to three long; VIII five short, one longer and two apically long hair-like. Submarginal row of bristles on right side of tergite 5 consisting of four evenly spaced bristles. Leg measurements summarized in Table 1.

Male, fore leg (Fig. 11); femur along ventral margin in basal third with a pair of spines, another pair halfway and two spines in apical third where there are a few hair-like bristles along dorsal margin. Tibia with two spine-like bristles ventrally and in the apical part and two more hair-like ones along dorsal margin. Pala with 3 elongate dorsal bristles, palm with 14 bristles in dorsal and 16 in ventral row, claw a simple wide elongate flap. Prestrigilar flap poorly differentiated; strigil (Fig. 15) small, elongate oval, 1 comb with about 80 elongate teeth, which are very densely packed and difficult to count. Median lobe of seventh abdominal sternite with a short and broad, pointed caudal part and two strongly and three relatively more weakly developed, larger bristles (Fig. 16), however, the microscopical slide is indistinct in this part, notably the two large bristles may turn out to belong to another part of the segment. Free lobe of left part of segment 8 with caudal margin curved on the medial side and somewhat pointed laterally (Fig. 17); lateral half with 32 bristles; left part of segment laterally with a dense fringe of rather long hairs of which the larger ones in apical part are warted or serrate along their convex margin. Plectrum on right part of segment 8 apparently absent, seven submarginal hairs in one row along inner margin in apical half of apex of right part of segment 8. Right paramere (Fig. 12)



Figs. 11–17. *Micronecta lemnae* n. sp. holotype ♂: 11. Fore leg, 12. Right paramere, 13. Apex of aedeagus, 14. Left paramere, 15. Right part of tergite 6 with strigil, 16. Median lobe of sternite 7, 17. Free lobe of left part of tergite 8. Scales: 0.1 mm.

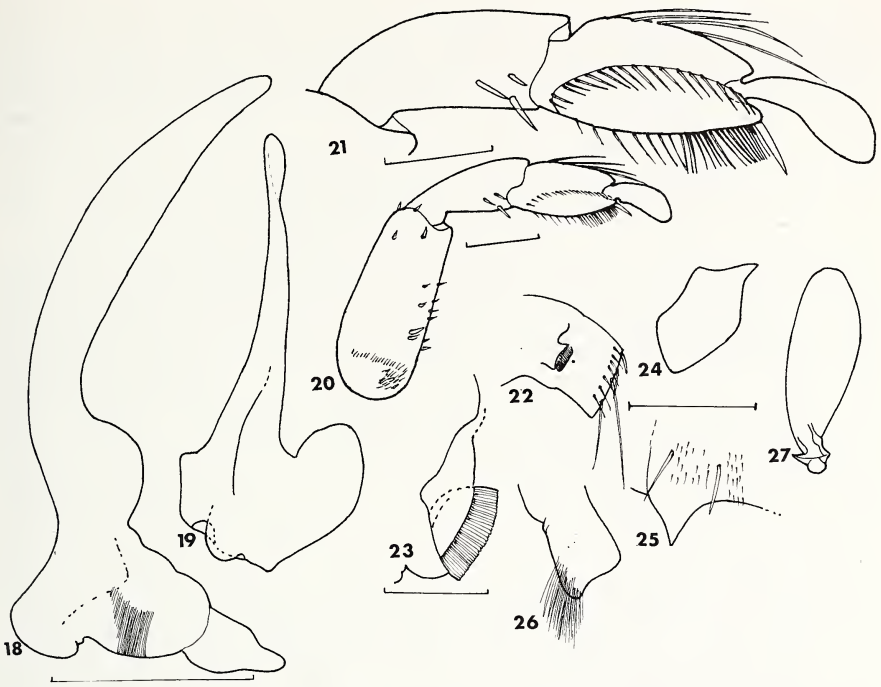
with a widened, lobed apex, pars stridens process not apparent. Left paramere clavate (Fig. 14), apex scaly. Aedeagus with two large teeth or flanges (Fig. 13).

Female. Anterior leg with the same pattern of spines and bristles as the male, claw normal, elongate and pointed. Tergite 8 lacking the thick fringe of bristles on its left side. Receptaculum seminis simple, urn-shaped.

Types. Holotype, ♂, brachypterous, THAILAND, **Phitsanulok Prov.,** Khao Pue-ya, 148 km E. of Phitsanulok City, upper part of Khak stream, subdivision of Tung Sa Kang Luang National Park, 24.xi.1994, leg. P. Chen & S. Piyapichart (NCTN). Paratypes, THAILAND, **Phitsanulok Prov.**: 1 ♀, same data as holotype (NCTN); **Mae Hong Song Prov.,** 11.xi.1995, km 17N Mae Hong Song, stream along road to Pha Sua waterfall (near "fish cave"), quiet bay with slightly muddy sand bottom, N9509, leg. N. Nieser, 1♀ (NCTN); Mae Hong Song River & dam, 3 km SE Mae Hong Song, 13.xi.1995, leg. H. Zettel, 1♀ (NHMW). All brachypterous.

Etymology. The species is named after my colleague Dr. Ping Ping Chen who collected the type series and wrote several important contributions to the knowledge of Asian Gerromorpha. The Chinese characters "ping ping" mean duckweed.

Discussion. Closely related to *M. pumilio* Lundblad (1933) from Java which is, however, still smaller with a body length of 0.8 mm and has the shaft of the left paramere narrower and its apex not clavate, right paramere and free lobe of tergite 8 differ only in details. The right paramere of these two species differs from all other *Micronecta* known. They also do not fit in any of the described subgenera.



Figs. 18–27. *Micronecta polhemusi* n. sp. paratypes, 18–26 ♂, 27 ♀: 18. Right paramere, 19. Left paramere, 20. Fore leg, 21. Fore tibia and pala, 22. Right part of tergite 6, 23. Strigil, 24. Prestrigilar lobe, 25. Median lobe of sternite 7, 26. Free lobe of left part of tergite 8, 27. Receptaculum seminis. Scales: 23 0.05 mm; 18, 19, 21 0.1 mm, 20, 22–27 0.25 mm.

Micronecta polhemusi, new species
Figs. 18–27

Description. Macropterous form (based on specimens glued on carton and alcohol specimens). *Dimensions.* Length, ♂ 2.57, s 0.098 (*2.40*), ♀ 2.70, 0.046; width ♂ 1.17, 0.054 (*1.10*), ♀ 1.20, 0.068; width of head ♂ 0.92, 0.032 (*0.86*), ♀ 0.94, 0.033; synthlipsis ♂ 0.45, 0.031 (*0.40*), ♀ 0.46, 0.033; width of an eye ♂ 0.26, 0.030 (*0.23*), ♀ 0.28, 0.009; width of pronotum ♂ 0.97, 0.041 (*0.90*), ♀ 1.02, 0.043.

Color. Dorsally generally dark grey, interoculus light brown, eyes grey, frons with a distinct castaneous mark extending onto clypeus and rostrum. Scutellum reddish brown. Hemelytra grey with distinct pale spine-like bristles in rather regular longitudinal rows, margins of clavus lighter, hyaline stripes at base of clavus and inner side of right membrane as usual in genus; embolium and an ill-defined broad transverse band on corium darker brown, darker pattern well visible with light shining through hemelytra only. Inner half of right membrane and outer half of left membrane smoky brown opaque, inner half of left membrane hyaline. Hind wings hyaline with slightly infuscated tips. Venter brown, legs yellowish brown with apex of middle tarsus and posterior claw dark, pala of male with a distinct brown patch covering most of posterior surface less developed in female, anterior claw brown.

Ratio length/width of body ♂ 2.19, 0.070, ♀ 2.27, 0.100. Head slightly narrower than pronotum, synthlipsis about 1.5 times wider than posterior width of an eye, ocular index ♂ 1.99, 0.087, ♀ 1.97, 0.068. Pronotum dorsally distinctly convex, about two and a half times as wide as long (W/L ♂ 2.3–2.5, ♀ 2.2–2.7). Spines laterally on abdominal segments: IV and V three or four short, one long; VI and VII three or four short, two longer; VIII four short, two apically very long. Submarginal row of bristles on right side of tergite 5 consisting of five to nine bristles evenly spaced over the length of the tergite. Leg measurements summarized in Table 1.

Male, fore leg (Fig. 20); femur with a row of about nine smaller spine-like bristles along ventral margin, a row of four slightly larger bristles just dorsally of the ventral margin, a pair of subapical and an apical pair of small bristles in dorsal half; tibia with three subapical spine-like bristles ventrally. Pala (Fig. 21) with 4–5 long dorsal hairs, palm with 14–18 bristles in dorsal and about 23 in ventral row, apically a thick bristle suggesting a secondary claw, claw broadly clavate, without ventral notch. Abdomen, lobes of abdominal tergite 4 with four median and two slightly smaller lateral bristles each. Prestrigilar flap as in Fig. 24; strigil small, oval, one comb with about 50 elongate teeth which are so tightly packed anteriorly that they are difficult to count (Figs. 22, 23), median lobe of seventh abdominal sternite with a relatively short and broad, pointed caudal part and two larger bristles at base (Fig. 25). Free lobe of left part of segment 8 with a lateral point with a tuft of 16–23 bristles (Fig. 26). Plectrum on right part of segment 8 with very shallow indistinct ribs somewhat like a finger-print, about eight submarginal hairs in one row along inner margin between plectrum and apex of right part of segment 8. Right paramere (Fig. 18) with a distinct bulge at base of shaft, 24–28 ribs on pars stridens process. Left paramere with a slightly twisted apex (Fig. 19). Aedeagus without special features.

Female fore leg, with essentially the same pattern of spines as in male. The three apical tibial spines indicates the border between tibia and pala on the tibiopala, claw narrow, sharply pointed, secondary claw present. Receptaculum seminis (Fig. 27) quite large, simple, clavate.

Types. Holotype, macropterous ♂, THAILAND, **Phitsanulok Prov.,** 110 km E of Phitsanulok City, Tung Saleang Luang N.P., stream, 300 m, 17.xi.1994, leg. P. P. Chen & S. Piyapichart (NCTN). Paratypes THAILAND, **Phitsanulok Prov.**: same data as holotype, 2♂, 3♀ (including allotype, NCTN, 1♂ on 4 microscopic slides). **Khon Kaen Prov.,** Noon Hua Chang, open area with small dam, rockpools & small potholes, N9523, 21.xi.1995, 1♂ (NCTN). VIÊT NAM: Nam Cat Tien N.P., 1–16.vi.1994, leg. P. Pacholátko & L. Dembicky (NHMW) 5♂, 7♀. All macropterous.

Etymology. Named after Dr. J. T. Polhemus for his many contributions to the knowledge of aquatic and semiaquatic bugs.

Discussion. Related to *M. khasiensis* and *M. waltoniana* both described from Assam by Hutchinson (1940) and placed by him in the subgenus *Mesonecta* Poisson, which is characterized by the secondary claw of the male pala. Both these species lack the distinct castaneous frontal mark. The size of *M. polhemusi* is intermediate between the above mentioned. The right parameres of both *M. khasiensis* and *M. waltoniana* lack the bulge at the base of the shaft. The anterior femur of *M. khasiensis* lacks the ventral row of spines. *Micronecta waltoniana* has a ventral row of bristles on the fore femur but has a narrow, not clavate claw in the male. All three species have a

similar number of bristles along the palm. The only other species in this subgenus, *M. pilosa* Poisson (1938) from Madagascar, is much larger, body length 4 mm, and has the free lobe of tergite 8 in the male narrower, apically evenly rounded, and with seven apical bristles only.

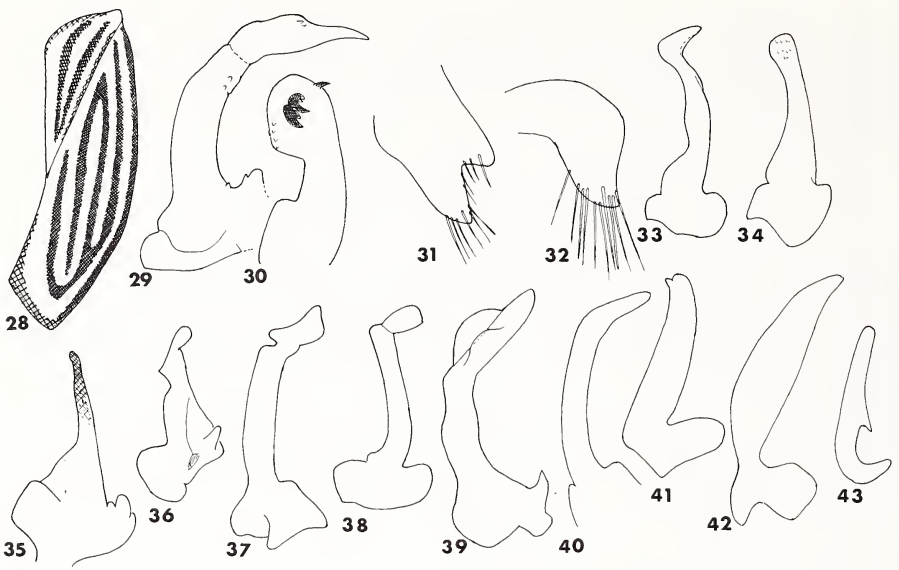
KEY TO MICRONECTINAE OF THAILAND AND ADJACENT AREAS

In many cases only ♂♂ identifiable

As some new records and undescribed species are still to be expected in the area, users of the key below who come across material which clearly does not run in the key are kindly requested to send it for study to N. Nieser, Htg. Eduardstr. 16, 4001 Rg Tiel, The Netherlands. Alcohol samples are much easier to deal with than dry prepared specimens.

Abbreviations. A = Assam; B = Myanmar; C = SW China; I = Indonesia; L = Laos & Cambodia; M = West Malaysia (including Singapore); S = Sumatra; T = Thailand; V = Viêt-Nam; W = widespread; ! first record; * known distribution restricted to this country.

1. Vertex with a round impression, surface of hemelytra with a scaly microstructure, fore tibia and pala fused in both sexes [W] . . . . . *Synaptonecta issa* (Distant).
– Vertex convex or, rarely, flattened, surface of hemelytra smooth, fore tibia and pala in males separate (Figs. 9, 10) (*Micronecta*) 2
2. Dark pattern of hemelytra punctuate, large species, length 2.6–3.3 mm [W] . . . . . *M. haliploides* Horváth.
– Dark pattern of hemelytra not punctuate, usually with more or less well defined stripes or reticulate, in some species hardly any pattern except for the hyaline strips at base of clavus and inner margin of right membrane, length 1.3–4.0 mm 3
3. Dark pattern on corium consisting of four distinct solid, regular parallel bands (Fig. 28) 4
– Dark pattern on corium streaky, irregularly linear or indistinct 5
4. Larger species, length 2.8–3.4 mm, pronotum with a distinct dark transverse stripe in the middle [W, T!] . . . . . *M. siva* (Kirkaldy).
– Smaller species, length 1.9–2.3 mm, pronotum with a subovally curved darker stripe on each side ("spectacles frame" of Wróblewski, 1968, 1972) which may be indistinct or fragmented, no transverse stripe [India, Sri Lanka, T!] . . . . . *M. ludibunda langkana* Wróblewski.
5. Males: right paramere apically with an acute projection (Fig. 29) aedeagus in addition to the normally present small teeth with a few large hooks. Length 2.1–2.5 mm. (Fig. 30) [T!, V] . . . . . *M. jaczewskii* Wróblewski.
– Male: right paramere with a less strongly narrowed tip, aedeagus with small teeth only. Length 1.3–4.0 mm 6
6. Length 2.4 mm or more 7
– Length less than 2.4 mm 12
7. Length 3.5 mm or more [W] . . . . . *M. scutellaris* (Stål).
– Length up to 3.3 mm 8
8. Longitudinal stripes on corium hardly discernible, males with or without a strigil 9
– Corium with distinct stripes, which may be interrupted, on lighter background, males with a strigil 10
9. Colour very dark, lateral margins of pronotum half as long as median length of pronotum (0.2/0.4), width of pronotum 2½ times its median length (1.0/0.4), males with



Figs. 28–43. Semidiagrammatical drawings of structural details in *Micronecta* males. 28. *M. siva* Kirkaldy right hemelytron; 29–30. *M. jaczewskii* Wróblewski right paramere and aedeagus (after Wróblewski, 1962); 31, 32 Free lobe of left part of eighth tergite; 31. *M. grisea* (Fieber), 32. *M. quadristrigata* Breddin; 33–36, 38, 41 Left paramere, 37, 39, 40, 42 Right paramere; 33. *M. quadristrigata* Breddin, 34. *M. sedula* Horváth, 35. *M. fugitans* Breddin, 36. *M. johorensis* Fernando (after Fernando, 1964), 37. *M. pocsi* Wróblewski (after Wróblewski, 1967), 38. *M. ludibunda* Breddin, 39. *M. guttatostriata* Lundblad, 40–41. *M. anatolica* Lindberg, 42. *M. fulva* Paiva (after Hutchinson 1940); 43. *M. tarsalis* Chen, tarsal claw.

a strigil, free lobe of left part of tergite 8 with a sinuate distal margin (Fig. 26), length 2.4–2.8 mm [T!, V!] . . . . . *M. polhemusi* n.sp.

– Colour light to medium brownish grey, lateral margins of pronotum one third as long as median length of pronotum (0.1/0.3), width of pronotum three times its median length (1.0/0.3), males without a strigil, free lobe of left part of tergite 8 with a deeply incised distal margin resulting in a short fingerlike projection usually pointing medially (Fig. 31), length 2.6–3.1 mm [W, T!] . . . . . *M. grisea* (Fieber) (=*thyesta* Distant, Wróblewski, 1968).

10. Male, sternite 7 (in the middle) with two large setae, body length 2.8–2.9 mm [India, V] . . . . . *M. desertana* Distant.

– Male, sternite 7 with four, sometimes weakly developed, bristles, body length 1.2–3.4 mm 11

11. Male, free lobe of 8th abdominal tergite sigmoid (Fig. 32), tip of left paramere sickle-shaped (Fig. 33), body length 2.2–2.9 mm [W, T!] . . . . . *M. quadristrigata* Breddin.

– Male free lobe of 8th abdominal tergite straight, distal margin slightly sinuate, tip of left paramere truncate to very slightly swollen (Fig. 34), body length 2.9–3.4 mm [Eastern Asia, V] . . . . . *M. sedula* Horváth.

12. Very small species, length up to 1.3 mm; male, right paramere apically widened with two lobes (Fig. 12) [T!*] . . . . . *M. lemnae* n.sp.

– Length over 1.5 mm, right paramere different 13

13. Apical part of left paramere rodlike, dark brown (Fig. 35); length 1.8–2.4 mm [T, M, I] ..... *M. fugitans* Breddin.
– Apical part of left paramere not brown, length 1.5–2.3 mm 14
14. Right paramere comparatively short & broad, left paramere flattened with two teeth and an apical lobe (Fig. 36); small species, length 1.6–1.8 mm known only in the brachypterous form [M*] ..... *M. johorensis* Fernando.
– Parameres different, length 1.5–2.4 mm 15
15. Intermediate claws less than half as long as tibia, specimens from V extremely dark coloured; male apical palar seta thickened suggesting an additional claw; length 2.1–2.3 mm [A, V] ..... *M. khasiensis* Hutchinson.
– Intermediate claw relatively longer, three quarters or more the length of tibia, male pala without "additional claw", length 1.5–2.4 mm 16
16. Right paramere apically with a widened flap-like structure (Fig. 37), length 1.5–1.8 mm [V*] ..... *M. pocsi* Wróblewski.
– Tip of right paramere not widened, length 1.7–2.4 mm 17
17. Left paramere with a widened thinner apical lobe (Fig. 38) 18
– Apex of left paramere different 19
18. Hemelytral pattern reticulate, length 2.0–2.3 mm [M*] *M. ludibunda malayana* Leong.
– Hemelytral pattern striped, length 1.9–2.2 mm [W] ... *M. ludibunda ludibunda* Breddin.
19. Male lacking a strigil, right paramere apically swollen (Fig. 39); lighter longitudinal lines on corium partly dissolved in small dots, length 2.0–2.4 mm [T!, V, I] ..... *M. guttatostriata* Lundblad.
– Male with a strigil, right paramere and hemelytral pattern different, length 1.7–2.2 mm 20
20. Right paramere apically hooked (Fig. 40) or shaft strongly curved (Fig. 1), left paramere with apical part broad (Fig. 2) 21
– Right paramere more or less straight, smoothly curved or sigmoid 22
21. Right paramere strongly curved (Fig. 1), left paramere without small apical tooth, length 1.9–2.2 mm (Fig. 2) [T!*] ..... *M. drepani* n. sp.
– Right paramere apically hooked (Fig. 40), left paramere with a small tooth apically (Fig. 41), length 1.6–2.0 mm [W] ..... *M. anatolica* Lindberg.
22. Right paramere more or less straight, swollen in the middle (Fig. 42), length 1.9–2.2 mm [B*] ..... *M. fulva* Paiva.
– Right paramere curved, length 1.6–2.1 mm 23
23. Costal margin of hemelytra with a simple dark stripe, claw of male pala with a subapical tooth (Fig. 43), length 1.6–2.0 mm [I, V] ..... *M. tarsalis* L. Chen.
– Costal margin of hemelytra with distinct dark spots (Lbl. 1933: pl. 9 fig. 3), claw of male without subapical tooth, length 1.7–2.1 mm [S, M] ..... *M. decorata* Lundblad.

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